

Appl. No.: 10/027,101

Amdt. Dated December 29, 2005

Response to Office Action of September 9, 2005

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) A method facilitating deployment of volume-based network policies across a computer network, the method comprising the steps of:

monitoring, over a given time interval, the aggregate volume of data transfer corresponding to each user of a plurality of users;

detecting, for a first user in the plurality of users, a network utilization milestone, wherein the network utilization milestone occurs when, within the given time interval, the aggregate volume of data transfer associated with the first user crosses a threshold; and

affecting a characteristic associated with the network access provided to the first user identified in the detecting step.

2. (previously amended) The method of claim 1 wherein the affecting step comprises the step of:

affecting a performance characteristic of the network access provided to the first user identified in the detecting step.

3. (previously amended) The method of claim 1 wherein the affecting step comprises the step of:

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degrading the network access provided to the first user identified in the detecting step.

4. (previously amended) The method of claim 1 wherein the affecting step comprises the step of:

denying further network access to the first user identified in the detecting step.

5. (previously amended) The method of claim 1 wherein the affecting step comprises the step of:

charging the first user identified in the detecting step for further network access.

6. (previously amended) The method of claim 1 further comprising the step of

notifying the first user when the aggregate volume of data transfer associated with the first user approaches the threshold.

7. (previously amended) The method of claim 1 wherein the detecting step comprises

comparing the aggregate number of transferred bytes associated with the first user over a given time interval against a threshold level defining the network utilization milestone.

8. (original) The method of claim 3 wherein network access is degraded only with respect to a predefined set of traffic types.

9. (original) The method of claim 4 wherein network access is denied only with respect

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to a predefined set of traffic types.

10. (original) The method of claim 1 wherein the monitoring step is performed only with respect to a predefined set of traffic types.

11. (currently amended) A method facilitating deployment of volume-based network policies across a computer network, the method comprising the steps of

monitoring, over a given time interval, the aggregate volume of data transfer corresponding to each user of a plurality of users within a given time interval, wherein the aggregate volume of data transfer characterizes the volume of data corresponding to past and current data flows over the given time interval;

detecting, for a first user in the plurality of users, a network utilization milestone, wherein the network utilization milestone occurs when, within the given time interval, the aggregate volume of data transfer associated with the first user crosses a threshold; and,

affecting, for the remainder of the time interval, a characteristic associated with the network access provided to the first user identified in the detecting step.

12. (previously amended) The method of claim 11 wherein the affecting step comprises the step of:

affecting a performance characteristic of the network access provided to the first user identified in the detecting step.

13. (previously amended) The method of claim 11 wherein the affecting step comprises

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the step of:

degrading the network access provided to the first user identified in the detecting step.

14. (previously amended) The method of claim 11 wherein the affecting step comprises the step of:

denying further network access to the first user identified in the detecting step.

15. (previously amended) The method of claim 11 wherein the affecting step comprises the step of:

charging the first user identified in the detecting step for further network access.

16. (previously amended) The method of claim 11 further comprising the step of

notifying the first user when the aggregate volume of data transfer associated with the first user approaches the threshold.

17. (previously amended) The method of claim 11 wherein the detecting step comprises

comparing the aggregate number of transferred bytes associated with the first user over a given time interval against a threshold level defining the network utilization milestone.

18. (original) The method of claim 17 wherein the time interval is a fixed time interval.

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19. (original) The method of claim 17 wherein the time interval is a sliding time interval.
20. (original) The method of claim 13 wherein network access is degraded only with respect to a predefined set of traffic types.
21. (original) The method of claim 14 wherein network access is denied only with respect to a predefined set of traffic types.
22. (original) The method of claim 1 wherein the monitoring step is performed only with respect to a predefined set of traffic types.
23. (currently amended) A method facilitating deployment of volume-based network policies across a computer network, the method comprising the steps of
- registering a user at a network access device connected to a first computer network, the network access device including an IP address;
  - associating the IP address with the user;
  - providing the user access to a second computer network by changing the configuration of a network device in a communication path between the first computer network and the second computer network;
  - monitoring, over a given time interval, the aggregate volume of data transfer associated with the IP address;
  - detecting a network utilization milestone based on the aggregate volume of data transfer within the given time interval associated with the IP address relative to a

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threshold;

changing the configuration of the network device to affect a characteristic associated with access to the second network provided to the user.

24. (currently amended) An apparatus facilitating the deployment of volume-based network policies across a first computer network, the first computer network comprising at least one traffic monitoring device operative to monitor the volume of network traffic generated by individual users, and at least one network control device operative to control access to a second computer network, comprising

a user account database maintaining the respective aggregate volumes of data transfer corresponding to each user of a plurality of users;

a data logging module operative to collect the aggregate volume of data transfer within a given time interval for the plurality of users collected data in the user account database;

a network usage monitor operative to:

scan the user account database to detect, for a first user in the plurality of users, a network utilization milestone reached by the first user based on the aggregate volume of data transfer associated with the first user in relation to a threshold and the [[a]] given time interval, and

modify the configuration of the network control device to affect a characteristic of access to the second computer network for the first user.

25. (original) The apparatus of claim 24 further comprising a user interface module operative to register new users and create corresponding user accounts in the user

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account database.

26. (original) The apparatus of claim 25 wherein the apparatus, in response to registration of a new user, is operative to modify the configuration of the network control device to allow access to the second computer network for the new user.

27. (previously amended) A system facilitating the deployment of volume-based network policies across a first computer network, comprising

a bandwidth management device operably connected to a communication path between the first computer network and a second computer network,

wherein the bandwidth management device is operative to:

monitor, for a first host in a plurality of hosts connected to the first network, the aggregate volume of network traffic generated by the first host over a given time interval, and

enforce bandwidth utilization controls associated with individual hosts on data flows generated by the respective individual hosts;

a user management server operative to:

detect, for the first user, a network utilization milestone based on the aggregate volume of data transfer in relation to a utilization threshold and the given time interval; and,

in response to a network utilization milestone, change the configuration of the bandwidth management device to associate bandwidth utilization controls corresponding to the milestone with the first host.

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28. (original) The system of claim 27 wherein the bandwidth management device is operative to redirect data flows generated by unknown hosts on the first computer network to the user management server; and wherein user management server is operative to register unknown hosts and change the configuration of the bandwidth management device to associate the host with bandwidth utilization controls operative to permit access to the second network.

29. (original) The system of claim 27 wherein the bandwidth utilization controls associated with the milestone are operative to deny access to the second computer network.

30. (original) The system of claim 27 wherein the bandwidth utilization controls associated with the milestone are operative to degrade access to the second computer network.

31. (original) The system of claim 27 wherein the bandwidth management device is further operative identify network traffic types associated with data flows traversing the device; and wherein the user management server is operative to configure bandwidth utilization controls applicable to traffic types identified by the bandwidth management device.

32. (original) The system of claim 27 wherein the bandwidth management device and the user management server reside on the same device.